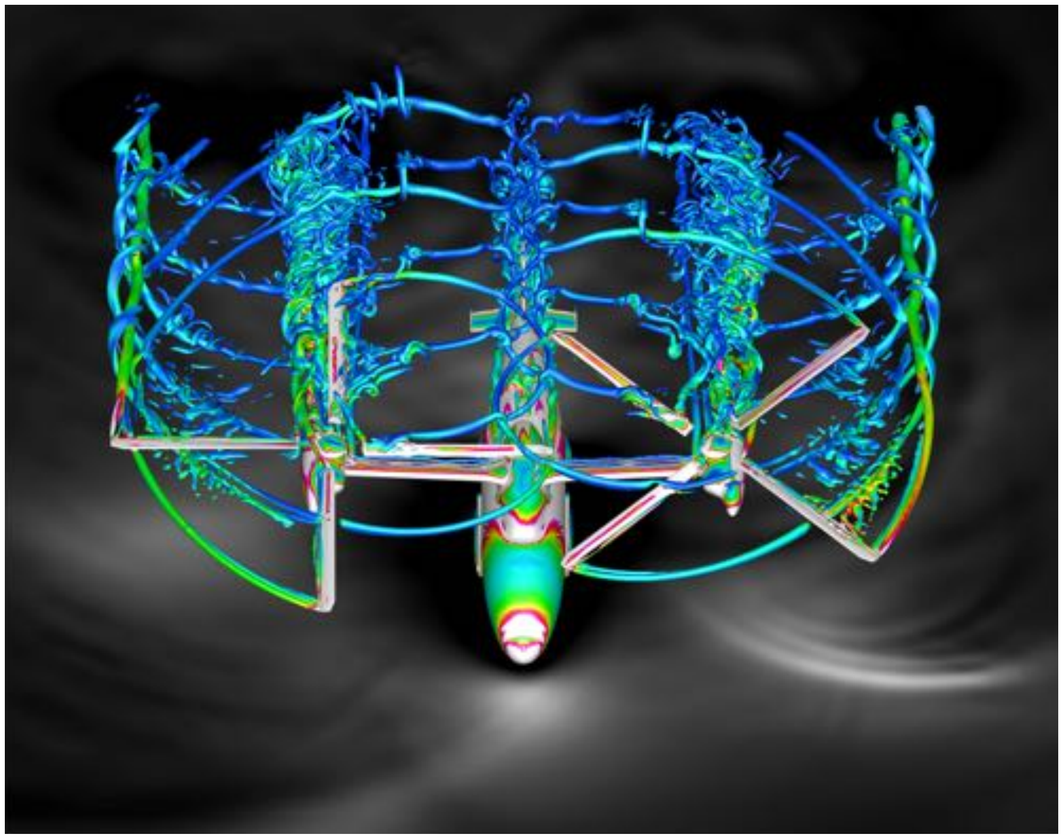
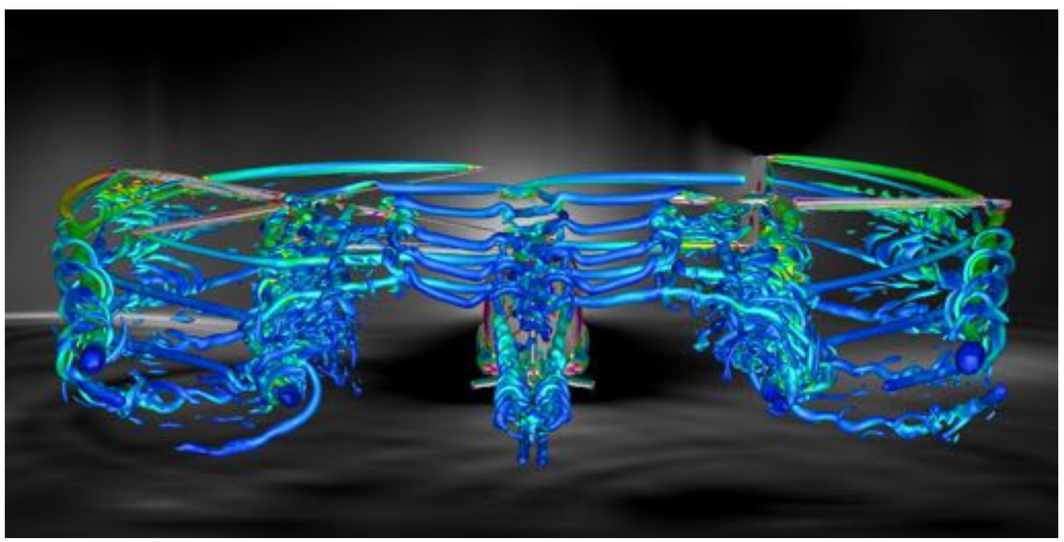


Visualization of the flow of NASA's side-by-side concept rotorcraft for urban air mobility (UAM) in forward flight. The side-by-side design has intermeshing rotors that can generate more thrust than two non-overlapping rotors with a more compact configuration. The vortex wake reveals the complex interactions between the intermeshing rotors. Vortices are colored by vorticity magnitude, where magenta is high vorticity and blue is low vorticity. Below and behind the rotorcraft, pressure waves show the acoustic field. *Patricia Ventura Diaz, NASA/Ames*



Visualization of NASA's side-by-side rotorcraft concept for UAM in forward flight. This back view shows the complex 3D vortex wake from the intermeshing rotors. Note the rolling of the vortex wake at far left and right. Interactions of the vortices in the overlapping region (center) produce a roll-up of the wake. Vortices are colored by vorticity magnitude (magenta is high; blue is low). Pressure is shown below and in front of the vehicle. These complex flow interactions and details can only be captured with high-fidelity CFD and high-order accurate schemes. *Patricia Ventura Diaz, NASA/Ames*

National Aeronautics and
Space Administration

Towards Urban Air Mobility: The Side-By-Side Air Taxi

Increased urbanization is pushing city transportation to its limits. What if we could use the third dimension to move around? Imagine a sky with delivery drones, air taxis, and shared flying vehicles. No, this is not a dream. This is the new era in air transportation that NASA is working on right now. Known as Urban Air Mobility (UAM), this vision will be a safe and efficient air transport method in urban areas. Flying vehicles will be able to take off and land vertically with hybrid or electric propulsion. But, the complex rotor flows and the aerodynamic interactions must be modeled and understood in order to design quiet, safe, and efficient vehicles. By running high-fidelity CFD simulations on NASA supercomputers, researchers are working together to make UAM a reality.

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